UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,289	12/07/2004	Axel Doering	GK-ZEI-3255 / 500343.2027	4475

			EXAMINER
26418	7590	07/26/2006	DWIVEDI, MAHESH H

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ART UNIT	PAPER NUMBER
2168	

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/517,289	DOERING, AXEL
	Examiner	Art Unit	
	Mahesh H. Dwivedi	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 December 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>7-13</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) <u>7-13</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>07 December 2004</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☒ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/7/2004</u>.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file.

Information Disclosure Statement

2.   The information disclosure statement filed 12/07/2004 fails to comply with 37

CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document;

each non-patent literature publication or that portion which caused it to be listed; and all

other information or that portion which caused it to be listed. It has been placed in the

application file, but the information referred to therein has not been considered.

The listing of references in the specification is not a proper information disclosure

statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other

information submitted for consideration by the Office, and MPEP § 609.04(a) states,

"the list may not be incorporated into the specification but must be submitted in a

separate paper." Therefore, unless the references have been cited by the examiner on

form PTO-892, they have not been considered.

Remarks

3.   The preliminary amendment submitted on 05/30/2006 has been received,

entered into record, and considered. The modified parts include the cancellation of

claims 1-6, the addition of claims 7-13, amending of the specification, cancellation of the

abstract, and submission of a new abstract.

Specification

4.   The disclosure is objected to because of the following informalities: In paragraph

7 of the specification, the phrase "that is installed on the same computer (...)" is

incoherent. The examiner is unclear as to what "(...)" refers to.

Appropriate correction is required.

Drawings

5.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they do not include the following reference sign(s) mentioned in the

description: "7" and "8" (In Paragraph 17). Corrected drawing sheets in compliance

with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of

the application. Any amended replacement drawing sheet should include all of the

figures appearing on the immediate prior version of the sheet, even if only one figure is

being amended. Each drawing sheet submitted after the filing date of an application

must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office

action. The objection to the drawings will not be held in abeyance.

Claim Objections

6.   Claim 12 is objected to because of the following informalities: The examiner

notes that it is unclear as to how and what the method of claim 7 will be implemented on

the arrangement of claim 12. Appropriate correction is required.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
>
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
>
> the prior art are such that the subject matter as a whole would have been obvious at the time the
>
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
>
> Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Golden et al. (U.S. Patent 6,766,041) and in view of **Marshall et al.** (U.S. Patent

6,453,057).

9.   Regarding claim 7, **Golden** teaches a method comprising:

A) carrying out a similarity analysis by a stored comparison image, and/or by a

standard image created by evaluating a plurality of comparison images (Golden,

Abstract).

The examiner notes that "The image and data gathered therefrom may be stored

in a database for later retrieval and comparison against other images. The data

gathered from the image may be compared against other stored data in the database to

determine the identity of the animal" (Abstract) is analogous to **"carrying out a**

similarity analysis by a stored comparison image, and/or by a standard image

created by evaluating a plurality of comparison images".

Golden does not explicitly teach:

B) determining deviations from a stored comparison image; and/or from a standard

image created by evaluating a plurality of comparison images.

Marshall, however, teaches **"determining deviations from a stored**

comparison image; and/or from a standard image created by evaluating a

plurality of comparison images" as "Fig. 10 illustrates the signal patterns 94 and 96

generated form two different images of the same individual's retina where the images

were taken several months apart…Thus, the method of the present invention provides a

unique signal pattern for an individual from pixel intensity data representing an image of

a portion of the optic disk where a matching or consistent signal pattern is generated

from different images of the same individual's retina" (Column 7, lines 37-51).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine the teachings of the cited references because teaching

Marshall's would have allowed **Golden's** to provide a method to search for varied

vascular structures and images, as noted by **Marshall** (Column 1, lines 45-53).

Regarding claim 8, **Golden** further teaches a method comprising:

A) wherein the evaluation is carried out by averaging extracted features (Column 7,

lines 19-38).

The examiner notes that "If sufficient variation exists, then the major transitions in

the slice of light-dark-light pixels would then be detected using a moving average

analysis" (Column 7, lines 30-32) is analogous to **"wherein the evaluation is carried**

out by averaging extracted features".

Regarding claim 9, **Golden** further teaches a method comprising:

A) wherein deviations are determined and/or the similarity analysis is carried out on the

basis of a gray-value analysis (Column 7, lines 19-38); and/or

B) a structure analysis (Column 3, lines 61-67,Column 5, lines 27-49).

The examiner notes that "The data in these slices would then be converted to a

high contrast gray representation of the slice by averaging the red, green, and blue

octets of each pixel" (Column 7, lines 25-28) is analogous to **"wherein deviations are**

determined and/or the similarity analysis is carried out on the basis of a gray-

value analysis". The examiner further notes that "By targeting common structures

such as the optic disk and dorsal retinal vascular branches, a consistent source of

readily identifiable, yet contrasting structures are available for digital imaging and

processing" (Column 3, lines 61-64) is analogous to **"a structure analysis"**.

Golden does not explicitly teach:

C) an analysis of color histograms.

Marshall, however, teaches **"an analysis of color histograms"** as "More

importantly, as shown at block 20, a histogram of the pixel intensities is first calculated

by the processor for a received retinal image" (Column 4, lines 7-12).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine the teachings of the cited references because teaching

Marshall's would have allowed **Golden's** to provide a method for the analysis of bit

mapped image data representing the intensity of pixels forming an image of an area of

an individual's retina , as noted by **Marshall** (Column 1, lines 58-61).

Regarding claim 10, **Golden** further teaches a method comprising:

A) wherein an extraction of vascular tree parameters is carried out (Column 2, lines 36-

47, Column 6, lines 48-67, Figures 2-7).

The examiner notes that "The method of the present invention includes the step

of preliminarily acquiring an image of the retinal vasculature of the subject animal"

(Column 6, lines 48-51).

Regarding claim 11, **Golden** teaches an arrangement comprising:

A) a fundus camera for recording the ocular fundus (Column 4, lines 58-67-Column 5,

lines 1-7);

B) an image storage for storing recorded fundus images (Golden, Abstract, Column 3,

lines 46-50, Column 5, lines 8-26); and

C) means for evaluating the recorded fundus images further comprising: means for

gray-value analysis (Column 7, lines 19-38); and/or

D) means for structure analysis (Column 5, lines 27-49).

The examiner notes that "The type of lens system would be similar to a lens such

as that used on a conventional ocular fundus camera" (Column 5, lines 1-2) is

analogous to **"a fundus camera for recording the ocular fundus"**. The examiner

further notes that "The image and data gathered therefrom may be stored in a database

for later retrieval and comparison against other images. The data gathered from the image may be compared against other stored data in the database to determine the identity of the animal" (Abstract) is analogous to **"an image storage for storing recorded fundus images"**. The examiner further notes that "The data in these slices would then be converted to a high contrast gray representation of the slice by averaging the red, green, and blue octets of each pixel" (Column 7, lines 25-28) is analogous to **"means for evaluating the recorded fundus images further comprising: means for gray-value analysis"**. The examiner further notes that "By targeting common structures such as the optic disk and dorsal retinal vascular branches, a consistent source of readily identifiable, yet contrasting structures are available for digital imaging and processing" (Column 3, lines 61-64) is analogous to **"means for structure analysis"**.

Golden does not explicitly teach:

E) means for preparing color histograms.

Marshall, however, teaches **"means for preparing color histograms"** as "More importantly, as shown at block 20, a histogram of the pixel intensities is first calculated by the processor for a received retinal image" (Column 4, lines 7-12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references because teaching **Marshall's** would have allowed **Golden's** to provide a method for the analysis of bit mapped image data representing the intensity of pixels forming an image of an area of an individual's retina , as noted by **Marshall** (Column 1, lines 58-61).

Regarding claim 12, applicant is directed towards the rejections of claims 7 and 11.

Regarding claim 13, **Golden** further teaches an arrangement comprising:

B) means are provided for similarity analysis by a stored comparison image, and/or a standard image created by evaluating a plurality of comparison images.

The examiner notes that "The image and data gathered therefrom may be stored in a database for later retrieval and comparison against other images. The data gathered from the image may be compared against other stored data in the database to determine the identity of the animal" (Abstract) is analogous to **"means are provided for similarity analysis by a stored comparison image, and/or a standard image created by evaluating a plurality of comparison images"**.

Golden does not explicitly teach:

B) wherein means are provided for determining deviations from a stored comparison image; and/or from a standard image created by evaluating a plurality of comparison images.

Marshall, however, teaches **"wherein means are provided for determining deviations from a stored comparison image; and/or from a standard image created by evaluating a plurality of comparison images"** as "Fig. 10 illustrates the signal patterns 94 and 96 generated form two different images of the same individual's retina where the images were taken several months apart...Thus, the method of the

present invention provides a unique signal pattern for an individual from pixel intensity

data representing an image of a portion of the optic disk where a matching or consistent

signal pattern is generated from different images of the same individual's retina"

(Column 7, lines 37-51).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine the teachings of the cited references because teaching

Marshall's would have allowed **Golden's** to provide a method to search for varied

vascular structures and images, as noted by **Marshall** (Column 1, lines 45-53).

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

U.S. Patent 6,757,409 issued to **Marshall et al.** on 29 June 2004. The subject

matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to capture,

store, analyze, compare, and retrieve fundus images).

U.S. PGPUB 2004/0156016 issued to **Kerr et al.** on 12 August 2004. The

subject matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to

capture, store, analyze, compare, and retrieve fundus images).

U.S. Patent 7,055,955 issued to **Kishida et al.** on 06 June 2006. The subject

matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to capture,

store, analyze, compare, and retrieve fundus images).

U.S. Patent 6,755,526 issued to **Shibata** on 29 June 2004. The subject matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to capture, store, analyze, compare, and retrieve fundus images).

U.S. Patent 6,112,114 issued to **Dreher** on 29 August 2000. The subject matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to capture, store, analyze, compare, and retrieve fundus images).

U.S. Patent 6,409,342 issued to **Ohnyuma et al.** on 25 June 2002. The subject matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to capture, store, analyze, compare, and retrieve fundus images).

U.S. Patent 6,928,193 issued to **Gersten** on 09 August 2005. The subject matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to capture, store, analyze, compare, and retrieve fundus images).

U.S. Patent 5,287,129 issued to **Sano et al.** on 15 February 1994. The subject matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to capture, store, analyze, compare, and retrieve fundus images).

U.S. Patent 6,053,865 issued to **Sugiyama et al.** on 25 April 2000. The subject matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to capture, store, analyze, compare, and retrieve fundus images).

U.S. Patent 5,993,001 issued to **Bursell et al.** on 13 November 19999. The subject matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to capture, store, analyze, compare, and retrieve fundus images).

U.S. Patent 5,557,9471 issued to **Barber et al.** on 26 November 1996. The subject matter disclosed therein is pertinent to that of claims 7-13 (e.g., methods to capture, store, analyze, compare, and retrieve fundus images).

Contact Information

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mahesh Dwivedi whose telephone number is (571) 272-2731. The examiner can normally be reached on Monday to Friday 8:20 am – 4:40 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached (571) 272-3642. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mahesh Dwivedi

Patent Examiner

Art Unit 2168

June 26, 2006

Leslie Wong

Primary Examiner